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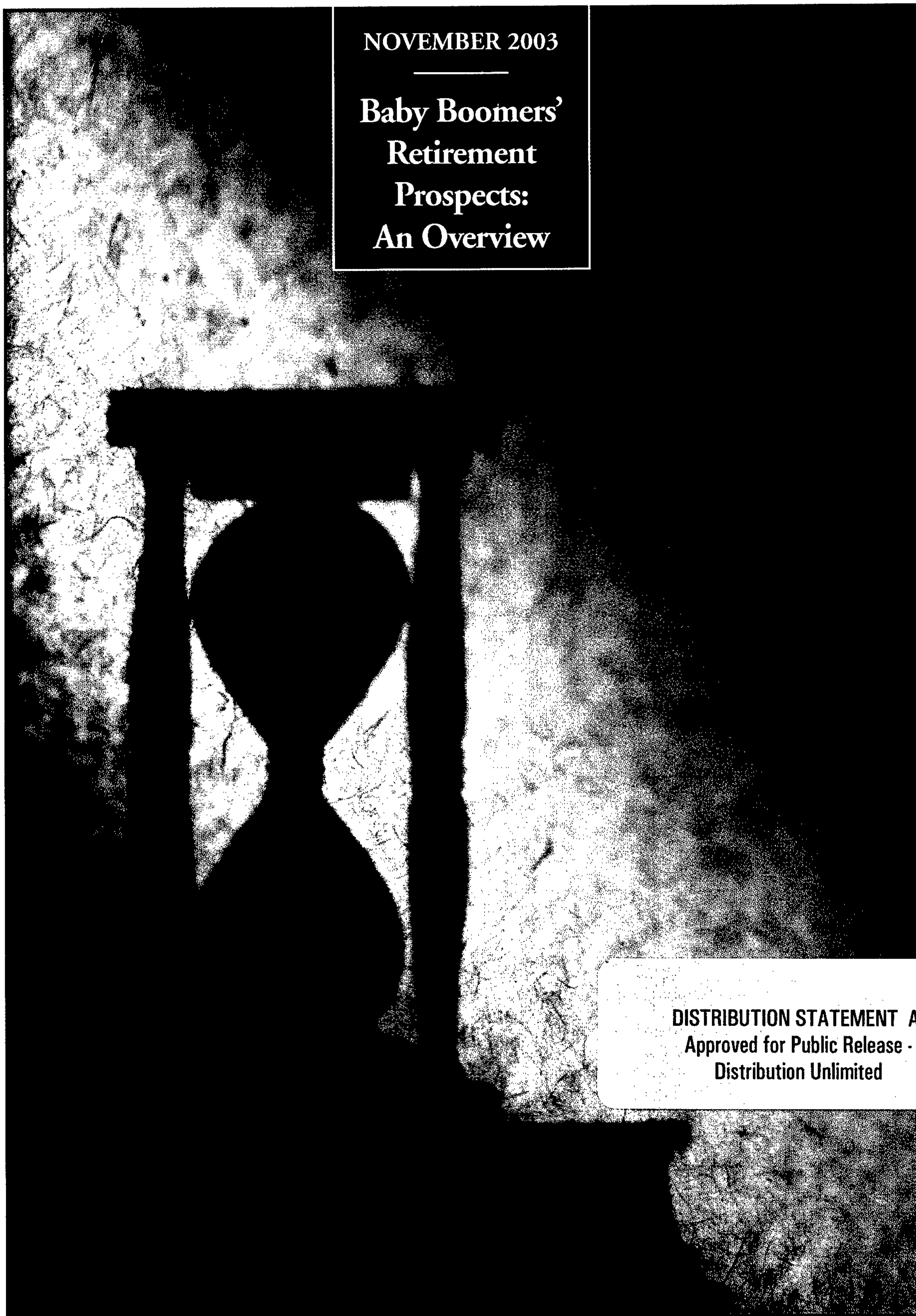
Baby Boomers' Retirement Prospects: An Overview



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Baby Boomers' Retirement Prospects: An Overview

November 2003

The Congress of the United States ■ Congressional Budget Office

PREFACE

Over the past 15 years, the retirement prospects of the baby-boom generation (people born from 1946 to 1964) have become a source of public concern. Some experts contend that low saving by boomers could limit economic growth in the United States and compound the financial pressures that face government programs such as Social Security and Medicare. This Congressional Budget Office (CBO) study—prepared at the request of the Chairman of the Senate Budget Committee—updates and expands on a 1993 CBO report on the retirement preparedness of boomers. It places the baby-boom retirement issue in historical and policy context, describes the methodologies used to analyze that issue, reviews numerous studies of retirement preparedness that have been published since 1993, and draws general conclusions from their findings.

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Christian Spoor edited the study, and Christine Bogusz proofread it. Maureen Costantino produced the cover, Lenny Skutnik printed the initial copies of the report, and Annette Kalicki prepared the electronic versions for CBO's Web site (www.cbo.gov).

Douglas Holtz-Eakin
Director

November 2003

CONTENTS

Table

Figures

Box

CHAPTER

1

Summary and Introduction

Having enjoyed historically high incomes over their working years, baby boomers (people born from 1946 to 1964) make up one of the most prosperous generations in U.S. history. In the past 15 years, however, their finances have become a source of concern in policy circles and in the press as doubts have arisen about whether boomers are accumulating enough wealth to maintain their current or expected standards of living after they retire.[1] One worry is that low saving by boomers could hurt the economy by limiting the growth of investment, productivity, and wages. Such curbs on economic activity could compound the budgetary pressures that the federal government will face as increasing numbers of boomers become eligible for benefits from Social Security and Medicare.

At the request of the Congress, the Congressional Budget Office (CBO) examined the issue of baby boomers' retirement prospects a decade ago (when the oldest boomers were 47).[2] It found that members of that generation typically were earning more than their parents had at the same age and were accumulating wealth at largely the same pace or faster—indicating that boomers were generally likely to be better off in retirement than preceding generations had been. That study did not attempt to estimate baby boomers' probable retirement incomes, however, nor did it address whether those incomes would be adequate to meet boomers' retirement goals.

This report updates and expands on CBO's 1993 study by presenting an overview of the boomer retirement issue and summarizing the research that has been conducted in the past decade on the retirement prospects of aging Americans. That research has employed various approaches to analyze retirement prospects, including different sources of data, methodologies, and measures of income adequacy. In particular, there is no generally agreed-upon standard of what constitutes an adequate or appropriate level of retirement income or consumption. Retirement preparations are a matter of choice, and households may freely decide to finance a prosperous retirement by saving a large share of their income during their working years, or they may choose to spend more while working and less once they retire. In the absence of a widely accepted standard, researchers have adopted several very different standards to assess the adequacy of boomers' retirement preparations and expected incomes. Differences in those standards help account for differences in the studies' conclusions.

1. For typical treatments in the press, see Peter Svensson, "Boomers Are Good at Saving, but Not Good Enough," *Associated Press*, April 8, 2003; and Jonathan Clements, "Boomer Bummer: Retirement May Get Ugly for Generation," *Wall Street Journal*, July 9, 2003, p. D1. A full-page advertisement that appeared on the back page of *Roll Call* on September 15, 2003, claimed that a "New Survey Shows Americans Falling Short in Planning and Saving for Retirement."

2. See Congressional Budget Office, *Baby Boomers in Retirement: An Early Perspective* (September 1993).

- Studies (like the 1993 CBO report) that compare baby boomers' current and projected finances with those of previous generations at the same age suggest that boomers are generally in better financial shape than their predecessors were at the same age. Broadly speaking, they have higher per capita income than their parents' generation did; they are preparing for retirement at largely the same pace; and they have accumulated more wealth. As a general rule, the more types of wealth that such studies account for, the larger the share of the baby-boom generation that appears prepared for retirement.

- Studies that compare boomers' expected retirement income with an absolute standard, such as the official poverty level, have concluded that fewer boomers are likely to live in poverty than is the case with current retirees.

- Most studies measure boomers' financial behavior against the goal of maintaining roughly the same standard of living through their working lives and their retirement (on the principle that people generally try to avoid sharp swings in their well-being). Most of those studies suggest that about half of boomer households are on track to accumulate enough retirement wealth to maintain their working-age standard of living after they retire as planned. The other half of households are likely to face a drop in their living standard at retirement, especially if they retire when they now intend to. In many cases, the shortfall will be modest and can be made up through a few additional years of work. However, a substantial fraction of low-income boomer households are accumulating very few assets, and net worth among families whose earners did not graduate from high school appears to have declined during part of the 1980s and 1990s. If current trends continue, many of those baby boomers are likely not only to face a lower standard of living when they retire but also to find themselves largely dependent on government benefits.

Studies reach varying conclusions about the retirement preparedness of boomers not only because of differences in methodology but also because researchers must depend on samples of the population, which may differ from study to study. Conclusions also vary because boomers' retirement incomes depend on future economic developments that are difficult to predict with any accuracy—developments such as future earnings and savings, returns on assets, retirement dates, life expectancy, changes in status (such as divorce, widowhood, and illness), pension incomes, the likelihood of and size of government benefits, and households' responses to changing circumstances.

Nearly all of the studies reviewed in this report assume that Social Security and other government benefits will be paid as prescribed by current law. However, budgetary pressures could result in lower benefit levels in the future. Because many baby boomers are likely to depend heavily on government benefits for the bulk of their income in retirement, their prospects may be less rosy than recent studies imply. Furthermore, people's saving behavior is influenced by their expectations about future benefits. To the extent that boomers believe that they will receive all of the government benefits to which they would be entitled under current law, that expectation may induce them to save less than they would otherwise. Conversely, to the extent that they recognize the looming difficulties in funding those programs, they may increase their saving or retire at a later age than they had originally planned.

CHAPTER

2

The U.S. Retirement System and the Baby-Boom Generation

Households may save for a variety of reasons: as a precaution against emergencies or periods of unemployment, to accumulate down payments on homes and other large purchases, to finance education for themselves and their children, to provide bequests, and to build up assets that will produce income in retirement. As incomes and life expectancies have risen substantially over the past century, people have tended to stop working earlier and spend longer periods in retirement than they did in the past. That trend has increased the relative importance of retirement income as a motivation for saving as well as the importance of income-security programs for the elderly.

As the baby-boom generation grows older, the number of people in the United States ages 65 and over is expected to roughly double by 2030. Moreover, that age group is forecast to grow from about 13 percent of the total population in 2000 to 20 percent in 2030 and to remain above 20 percent for at least several decades thereafter.[1] With life expectancies continuing to rise, typical boomers are projected to live about two years longer than their parents did *(see Figure 1)* and thus could spend more time in retirement. Meanwhile, the labor force is expected to grow much more slowly than the population of retirees, resulting in many fewer workers per retiree. Whereas there were 4.8 people ages 20 to 64 in 2000 for each person age 65 or older, that number is expected to decline to around 2.9 by 2030 *(see Figure 2)*.

To the extent that baby boomers intend to provide for their own retirement, they must decide how much to save during their working years and how to invest those savings to provide income in the future. But boomers need not set aside enough resources to cover all of their anticipated needs in retirement. Some portion of those needs is likely to be covered by pensions and, more importantly, by government benefits.[2]

Government Retirement and Health Programs

The Social Security, Medicare, and Medicaid programs partially replace retirees' working-age incomes and finance a large share of their health care expenses. Those programs are mainly funded on a pay-as-you-go basis through taxes on workers' wages and salaries. In the past 40 years, spending for Social Security and

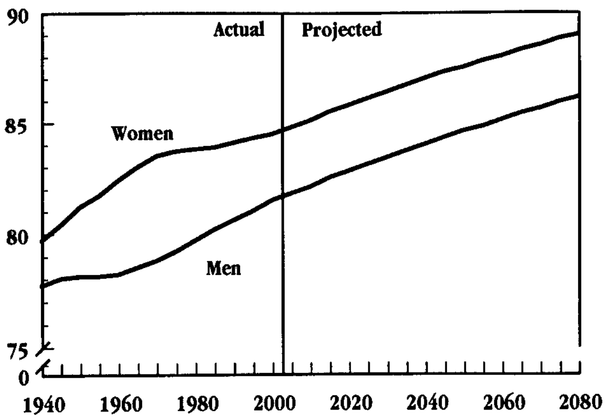
1. Bureau of the Census, "National Population Projections—Annual Projections of the Resident Population by Age, Sex, Race, and Hispanic Origin: Lowest, Middle, Highest Series and Zero International Migration Series, 1999 to 2100," middle-series data, available at www.census.gov/population/www/projections/natdet-D1A.html.

2. Some observers also note the importance of transfers between family members, such as bequests from parents to their children to help them establish a financial base and caretaking of elderly parents by their children.

Figure 1.

Life Expectancy of 65-Year-Olds

(Years)



Source: Congressional Budget Office based on Social Security Administration, *The 2003 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (March 17, 2003), p. 86, available at www.ssa.gov/OACT/TR/TR03/tr03.pdf.

Medicare (the two programs that focus most heavily on the elderly) has risen from 2.5 percent of the nation's gross domestic product to 6.9 percent.

Today's retirees are heavily dependent on benefits from those programs. Overall, Social Security payments make up about 40 percent of the total income of people ages 65 and over. However, about two-thirds of those people receive at least half of their income from Social Security, and one-third receive at least 90 percent. Annual Social Security benefits are projected to average $10,740 this year.[3] According to one estimate, a two-earner couple who retired in 2000 at age 65 (one earning an average wage and the other a low wage) will receive a total of $570,000 in Social Security and Medicare benefits over their lifetime.[4]

Yet even with benefits of that size, about 10 percent of the elderly fall below the official poverty level.[5]

If current trends persist, Social Security benefits will continue to rise along with wages, and expenditures per elderly Medicare or Medicaid beneficiary will also keep growing. Thus, baby-boomer households are expected—under current law—to receive a significant portion of their retirement income from Social Security and to have a large share of their medical and long-term care expenses paid by Medicare and Medicaid. If the two-earner couple described above retires at age 65 in 2030, they will receive an estimated total of $960,000 in Social Security and Medicare benefits during their lifetime, under current law.[6]

Present trends are unlikely to persist indefinitely, however, because total payments to retirees are expected to grow much faster under current law than either the total incomes of workers who pay Social Security and Medicare taxes or the revenues earmarked for those programs.[7] That widening gap will place increasing

3. Social Security Administration, *Fast Facts and Figures About Social Security*, SSA Publication No. 13-11785 (June 2003), available at www.ssa.gov/policy/docs/chartbooks/fast_facts/2003/ff2003.pdf.

4. That dollar amount represents the present value of the benefits in 2000. See Eugene Steuerle and Adam Carasso, *Lifetime Social Security and Medicare Benefits*, Straight Talk on Social Security and Retirement Policy Series No. 36 (Washington, D.C.: Urban Institute, March 2003), available at www.urban.org/url.cfm?ID=310667.

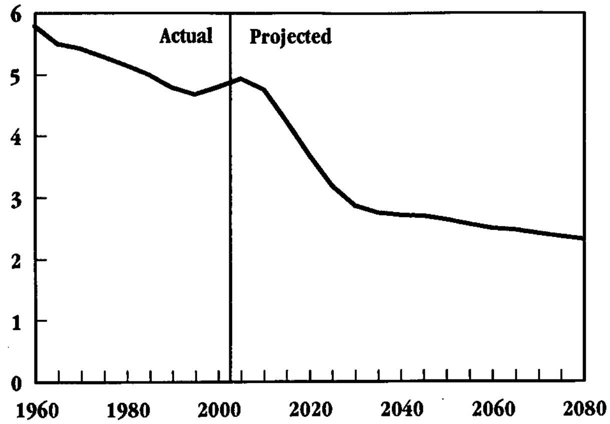
5. In 2002, the official poverty level for an elderly two-person household was just under $11,000 of income. See Social Security Administration, *Fast Facts and Figures About Social Security*.

6. That amount represents the present value of the benefits in 2030. The calculation assumes that the couple has the same relative income level in 2030 as the couple that retired in 2000. See Steuerle and Carasso, *Lifetime Social Security and Medicare Benefits*.

7. The Social Security Administration projects that by 2018, its trust funds will need to begin redeeming bonds to cover some currently prescribed benefits, requiring the Treasury to find resources to redeem the bonds. It further projects that the trust funds will be exhausted by 2042, at which time projected revenues would be enough to cover only 73 percent of currently projected benefits. See Social Security Administration, *The 2003 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (March 17, 2003), p. 8, available at www.ssa.gov/OACT/TR/TR03/tr03.pdf.

Figure 2.

Ratio of Population Ages 20 to 64 to Population Ages 65 and Over



Source: Congressional Budget Office based on Social Security Administration, *The 2003 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (March 17, 2003), p. 82, available at www.ssa.gov/OACT/TR/TR03/tr03.pdf. (The values shown here are the inverses of the dependency ratios given in that report.)

stress on both programs. Narrowing the gap could involve slowing the future growth of benefits.

Because the existence of government benefits plays such an important role in households' future well-being, it probably influences those households' propensity to save for retirement. A 1998 CBO study concluded that "each dollar of Social Security wealth . . . reduces private wealth by between zero and 50 cents."[8] At the same time, however, looming budgetary pressures leave current workers increasingly uncertain about how secure their future benefits are. A recent study of expectations about the future of Social Security found that many people question whether they will receive the payments prescribed under current law.[9] That uncertainty could induce them to increase their saving to offset possible reductions in future benefits. (However, the study did not provide any evidence that people who are less confident about receiving Social Security tend to save more.)

If changes to the Social Security program were made unexpectedly, households nearing retirement would be less well prepared. But given sufficient time to adjust, households could increase their work effort and saving to offset such changes. The extent to which baby boomers are providing for their own retirement—and have time to react to policy changes—is thus an important consideration in evaluating proposals to reform the Social Security and Medicare programs.[10]

8. Congressional Budget Office, *Social Security and Private Saving: A Review of the Empirical Evidence* (July 1998), pp. 10-11. Not only is expected Social Security income likely to reduce saving for retirement, but it almost certainly reduces work effort by encouraging early retirement. Furthermore, to the extent that expected Social Security benefits lessen the incentive to save, they decrease the amount of capital available per worker and thus workers' wages and productivity—the source of Social Security and Medicare tax revenues.

9. See Jeff Dominitz, Charles F. Manski, and Jordan Heinz, *'Will Social Security Be There for You?': How Americans Perceive Their Benefits*, Working Paper No. 9798 (Cambridge, Mass.: National Bureau of Economic Research, June 2003), available at www.nber.org/papers/w9798. The study concluded that younger people tend to be much less confident than older people that the Social Security system will still exist when they reach retirement age. The median 40-year-old thinks there is only a 50 percent chance that he or she will be eligible to receive Social Security benefits upon retirement. Younger people also tend to have a much wider range of beliefs about the likely size of future benefits than older people do. On average, however, they believe that if the system does continue to exist, their benefits will be roughly similar to or slightly lower than current benefits.

10. Various CBO publications provide more information about the challenges facing Social Security and Medicare. See *Social Security: A Primer* (September 2001); *A 125-Year Picture of the Federal Government's Share of the Economy, 1950 to 2075*, Long-Range Fiscal Policy Brief No. 1 (revised July 3, 2002); *The Looming Budgetary Impact of Society's Aging*, Long-Range Fiscal Policy Brief No. 2 (July 3, 2002); *Social Security and the Federal Budget: The Necessity of Maintaining a Comprehensive Long-Range Perspective*, Long-Range Fiscal Policy Brief No. 3 (August 1, 2002); *The Impact of Social Security and Medicare on the Federal Budget*, Long-Range Fiscal Policy Brief No. 6 (November 14, 2002); *The Future Growth of Social Security: It's Not Just Society's Aging*, Long-Range Fiscal Policy Brief No. 9 (July 1, 2003); and *Comparing Budgetary and Trust Fund Measures of the Outlook for Social Security and Medicare*, Long-Range Fiscal Policy Brief No. 10 (October 10, 2003).

Pensions and Other Sources of Retirement Income

Some degree of structural change is already occurring in several other areas—such as pensions, bequests, and marital status—that have a bearing on living standards in retirement.

In the area of pensions, a declining proportion of the workforce is covered by defined-benefit plans, in which pension benefits are based primarily on salary levels and years of service.[11] Moreover, a growing share of defined-benefit plans have been converted from traditional plans to cash-balance plans, in which benefits are defined by employers' contributions and guaranteed rates of return on those contributions. In addition, more workers are being covered by defined-contribution plans, whose benefits depend on workers' and employers' contributions and on uncertain returns on those savings. Thus, to some extent, defined-contribution plans conflate personal saving and pension saving.

Those trends in pension-plan coverage have several effects.[12] Both cash-balance plans and defined-contribution plans more clearly establish the relationship between contributions and the accumulation of assets than traditional defined-benefit plans do. They also make it easier for workers to preserve their retirement assets while changing jobs in a rapidly evolving economy. Some evidence suggests that shifting to cash-balance plans has mixed effects: tending to benefit workers near the bottom of the distribution of defined-benefit wealth but harming those near the top.[13] Defined-contribution plans give workers greater responsibility for their retirement planning. And although such plans tend to expose workers rather than plans to the risks of investing, some evidence suggests that many workers could end up with larger retirement benefits under a typical defined-contribution plan than under a defined-benefit plan.[14]

Bequests are another source of uncertainty about how well baby boomers are preparing for retirement. Many observers note that boomers' parents accumulated a great deal of wealth and may be in a position to leave substantial bequests to their children. However, some researchers question whether bequests from older generations will significantly benefit the majority of boomers in retirement.[15]

Finally, many baby boomers' living arrangements differ from those of their parents in ways that could affect their financial status during retirement. Elderly

11. See Alicia H. Munnell and Annika Sundén, "Private Pensions: Coverage and Benefit Trends" (paper prepared for the Pension Rights Center conference "Conversation on Coverage," Washington, D.C., July 24-25, 2001), available at www.pension coverage.net/PDFs/ConversationPaper.pdf.

12. The consequences of the shift from defined-benefit to defined-contribution plans—particularly tax consequences—are discussed in Congressional Budget Office, *Utilization of Tax Incentives for Retirement Saving* (August 2003).

13. See Richard W. Johnson and Cori Uccello, *Can Cash Balance Pension Plans Improve Retirement Security for Today's Workers?* Retirement Project Brief No. 14 (Washington, D.C.: Urban Institute, November 2002), available at www.urban.org/url.cfm?ID=310576.

14. See Andrew A. Samwick and Jonathan Skinner, *How Will Defined Contribution Pension Plans Affect Retirement Income?* Working Paper No. 6645 (Cambridge, Mass.: National Bureau of Economic Research, July 1998), available at www.nber.org/papers/w6645.

15. Although baby boomers' parents have accumulated a historically large quantity of wealth, they also appear likely to live longer—and therefore spend more of their retirement wealth —than was previously expected of them. In addition, much of their wealth is in the form of expected Social Security payments rather than financial assets and thus is less likely to be passed on as bequests (though it may be passed on through gifts while the parents are alive). Bequests tend to be highly concentrated, benefiting relatively few inheritors; and the baby-boom generation is large, with more people to spread bequests among. Those issues are examined in Jagadeesh Gokhale and Laurence J. Kotlikoff, *The Baby Boomers' Mega-Inheritance—Myth or Reality?* Economic Commentary Series (Cleveland, Ohio: Federal Reserve Bank of Cleveland, October 1, 2000), available at www.clev.frb.org/Research/com2000/1001.pdf.

boomers are more likely than elderly members of previous generations to be divorced or never to have married.[16] Historically, unmarried people tend not to live as long as married people and so require less retirement wealth.[17] However, they also tend to have higher living expenses and are more likely to be poor. If those historical patterns continue to hold true, an increasing share of the future elderly may find their finances adversely affected by the trends in marital status.

16. See Richard A. Easterlin, Christine M. Schaeffer, and Diane J. Macunovich, "Will the Baby Boomers Be Less Well Off Than Their Parents? Income, Wealth and Family Circumstances Over the Life Cycle in the United States," *Population and Development Review*, vol. 19, no. 3 (September 1993), p. 513.

17. See Yuanreng Hu and Norren Goldman, "Mortality Differentials by Marital Status: An International Comparison" *Demography*, vol. 27, no. 2 (May 1990), pp. 233-250; and Robert A. Hummer, Richard G. Rogers, and Isaac W. Eberstein, "Sociodemographic Differentials in Adult Mortality: A Review of Analytic Approaches," *Population and Development Review*, vol. 24, no. 3 (September 1998), pp. 553-578.

CHAPTER

3

Baby Boomers and the Decline in Saving

For nearly two decades, the total personal saving rate of U.S. households (as measured by the government's national income and product accounts, or NIPAs) has been falling *(see Figure 3)*. Many observers associate that decline with the baby-boom generation, but such an association is inaccurate. The NIPA measure of personal saving is an aggregate that covers boomers and nonboomers alike, as well as the activities of nonprofit organizations. Moreover, it accounts for only a portion of total private saving, excluding households' purchases of durable goods, saving by private corporations, adjustments for inflation, and many forms of capital gains. Broader measures of overall private saving (which are adjusted for investment in durable goods, inflation, tax accruals in retirement accounts, and corporate saving) have shown a smaller decline since the mid-1990s.[1]

Because the NIPA personal saving rate is an aggregate measure of saving as well as an incomplete one, it does not provide much useful information for judging the extent to which households in any given cohort of the population are preparing for retirement. Nevertheless, declines in many measures of private saving may reflect a decrease in people's willingness to save, which could constrain the long-term growth of labor productivity and hamper the economy's ability to meet the retirement needs of the baby-boom generation.

Other sources of information—research studies published in the past 10 years—suggest that the financial behavior of baby boomers is broadly similar to that of previous generations:

- The Congressional Budget Office's 1993 study found that in the late 1980s, boomer households had median wealth-to-income ratios that were roughly the same as or higher than those of households at the same age 30 years earlier.[2] Only a few groups of households (notably, those who had low education levels or did not own a home) were accumulating less wealth than their parents.

- Another study from the mid-1990s found that boomer households, taken as a group, were saving at largely the pace that their parents had at the same age and did not appear to be a significant

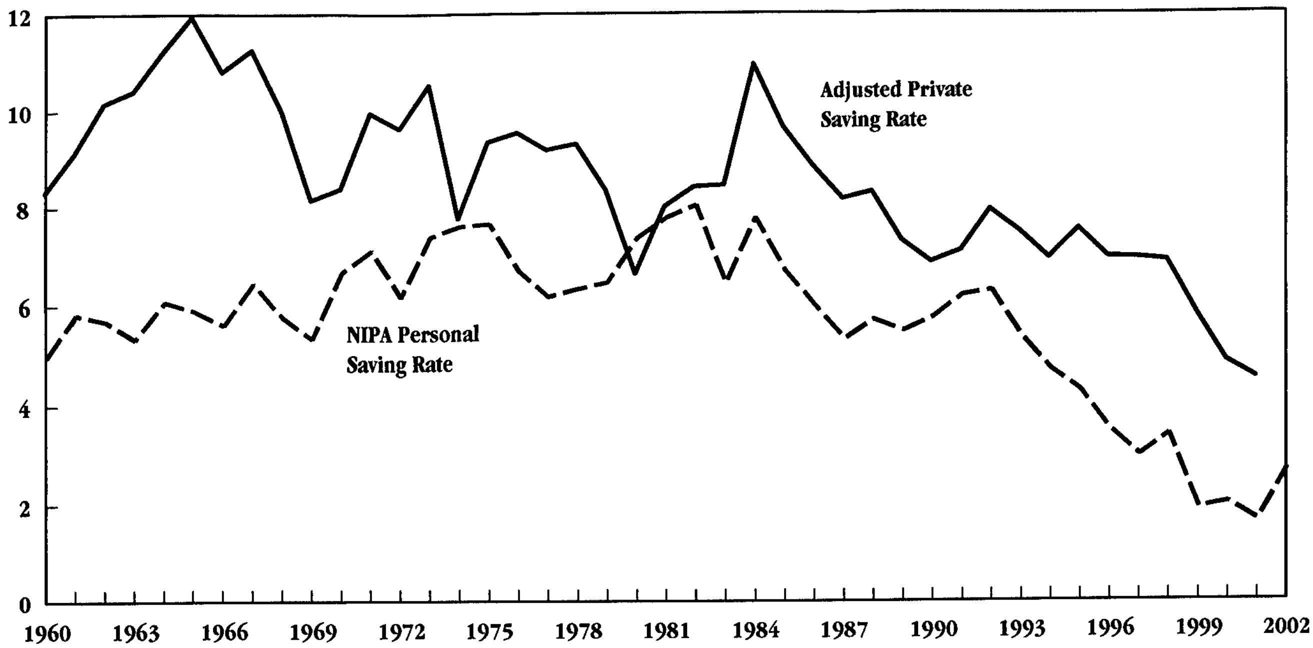
1. Even broader measures of saving that include capital gains show much stronger swings than the measures mentioned above. By raising asset values, capital gains can increase a household's wealth even if it does not undertake any conventional saving. Taking capital gains into account, the household saving rate reached its highest level of the past four decades in 1999, although it has fallen precipitously in the past three years.

2. Congressional Budget Office, *Baby Boomers in Retirement: An Early Perspective* (September 1993), p. xi.

Figure 3.

Saving Rates

(As a percentage of gross domestic product)



Source: Congressional Budget Office based on data from the national income and product accounts (NIPAs) and the Federal Reserve Board's flow-of-funds accounts.

Note: Adjusted private saving is personal and corporate saving with adjustments for inflation (the product of the percentage change in the gross domestic product deflator and the private sector's holdings of credit-market debt) and for accrued taxes (equal to 20 percent of the saving in pension and individual retirement accounts, which is the estimated deferred tax liability).

source of the decline in personal saving.[3] Rather, the study concluded, the decline in overall saving mainly resulted from an increase in consumption by the elderly.

- A later study found that as of 1995, baby-boomer households seemed to have slightly lower rates of financial saving than their parents but larger contributions to retirement accounts and probably higher capital gains on their investments.[4] It found only a modest decline in the boomer cohort's saving rate compared with that of its predecessors.

- A survey of changes in wealth between 1984 and 1994 concluded that the median boomer household had noticeably lower wealth and income than the median household of the same age a decade earlier, but it also noted that the comparison excluded private pension assets, which appeared to be trending upward over time.[5]

- Data from the triennial Survey of Consumer Finances (which includes most components of

3. See Jagadeesh Gokhale, Laurence J. Kotlikoff, and John Sabelhaus, "Understanding the Postwar Decline in U.S. Saving: A Cohort Analysis," *Brookings Papers on Economic Activity*, no. 1 (1996), pp. 315-407.

4. O.P. Attanasio and M. Paiella, "Household Savings in the U.S.A.," *Research in Economics*, vol. 55, no. 1 (March 2001), pp. 109-132.

5. Erik Hurst, Ming Ching Luoh, and Frank P. Stafford, "The Wealth Dynamics of American Families, 1984-94," *Brookings Papers on Economic Activity*, no. 1 (1998).

wealth except private defined-benefit pensions and expected Social Security payments) indicate that the ratio of median wealth to median income of households ages 35 to 54 was essentially the same in 2001 as it had been in 1989.[6] That finding suggests that boomers were accumulating wealth relative to their income at about the same rate as households 10 years older had at the same age. With roughly the same ratio of wealth to income, boomers appeared to be on track to finance about the same proportion of their working-age income in retirement as their predecessors.

- Another recent study painted a more pessimistic picture of the finances of preboomer and older boomer households. It reported a significant drop in median wealth among households headed by people ages 47 to 64 in 1998 compared with households in the same age group in 1983. That drop appears to be explained mainly by the study's projections of declining median lifetime earnings—projections that appear inconsistent with historical data that show rising median income (wage earnings plus income from other sources). The study's findings also result partly from changes in Social Security law that raised the retirement age and thus reduced expected lifetime benefits. In addition, the study ignored potential future contributions from defined-contribution pension plans while apparently taking into account some potential future contributions to defined-benefit plans. Because a growing share of the workforce is covered by defined-contribution plans and a declining share is covered by defined-benefit plans, that approach tends to exclude an increasing proportion of workers' likely retirement wealth.[7]

Taken together, those studies suggest relatively little difference in the extent of wealth accumulation between boomer-age households and previous generations. However, the studies do suggest that capital gains are playing an increasingly important role in that accumulation. Because the most recent study relies on data from 2001, none of that research takes into account the sizable changes in the value of housing and the stock market that have occurred over the past two years. In addition, those studies do not explicitly consider the implications for Social Security and Medicare of the government's looming budgetary pressures.

6. See Table 1 (income) and Table 3 (wealth) in the public data tables from the survey, available at www.federalreserve.gov/pubs/oss/oss2/2001/scf2001home.html.

7. Edward N. Wolff, *Retirement Insecurity: The Income Shortfalls Awaiting the Soon-to-Retire* (Washington, D.C.: Economic Policy Institute, 2002), available at www.epinet.org.

CHAPTER

4

Methodologies for Analyzing Retirement Preparedness

Studies of how prepared people are for retirement have reached a range of conclusions, which in some cases appear to contradict one another. The reason for the range is that those studies focus on different household characteristics, employ different sets of data, and analyze them in differing ways. This chapter outlines the various methodologies used to estimate retirement preparedness. The main areas of difference between studies are:

- The standard of preparedness or of future well-being considered adequate or appropriate,
- The comprehensiveness of the measure of resources used (income, saving, or wealth) and whether it incorporates projections of the future as well as current accumulations,
- The age cohorts included in the study,
- The data sample analyzed, and
- The degree of demographic and socioeconomic detail included.

The next chapter describes the general conclusions that can be drawn from recent studies despite their differences in focus and approach.

Standard of Preparedness

Studies vary a great deal in the standard of preparedness or adequacy against which they measure baby boomers' income, saving, or wealth. Some studies simply compare the financial status of a sample of boomers with that of a sample from the preceding generation, either at the same age or at the same time. An improvement on that approach is to project boomers' financial status in retirement assuming that they continue to save at their current rates. Those approaches illustrate how living standards have risen over time and how many more resources boomers are likely to have as they move into retirement than previous generations did.

A more comprehensive method involves two steps: calculating the percentage of current income that representative households must save to achieve a level of retirement income that meets some standard of adequacy, and then comparing that calculated rate with households' actual saving rates. Adequacy can be defined in terms of a standard of need, such as an official poverty level, or in relation to consumption spending during working years. Most of the studies reviewed in this report use the second definition—that is, the studies assume that people want to maintain a fairly constant standard of living throughout their lives and plan to replace some percentage of their preretirement

income after they stop working. In essence, that approach tries to determine whether people will be satisfied with the resources they have in retirement.

A major problem with using that definition of adequacy is that little agreement exists about what replacement rate households require in order to maintain a constant standard of living. Financial planners typically say that people can maintain their preretirement living standard by replacing only about 70 percent to 80 percent of their working-age income. The reason they need not replace it all is that households usually face lower expenses in retirement than they did while working, for several reasons:

- They no longer have job-related expenditures, such as commuting costs;
- If they have accumulated enough wealth, they no longer need to save much of any current income they receive;
- If they own a home, they have typically paid off their mortgage;
- They do not usually need to spend money on their children;
- If they cease working entirely, they are no longer subject to payroll taxes;
- For most people, Social Security is largely untaxed, and with less taxable income, they may drop into a lower tax bracket; and
- They have more leisure time, which means they have opportunities to provide themselves with services (such as cooking and home maintenance) that they might have paid for earlier, as well as opportunities for part-time work to earn extra income.[1]

Conversely, many retirees face substantial and growing expenses for health care, not all of which are covered by Medicare, Medicaid, or private insurance.[2] A study by AARP projected that in 1999, out-of-pocket medical costs would average about $2,430 (or 19 percent of income) for noninstitutionalized Medicare beneficiaries ages 65 and older.[3] For a quarter of those beneficiaries, AARP estimated, such costs would exceed $3,000. Moreover, elderly retirees face the possibility of developing disabilities that may leave them in need of expensive long-term care, which can rapidly deplete any retirement assets they have accumulated.

An extension of the replacement-rate approach compares people's actual behavior with model simulations in which saving behavior is programmed to be consistent with economic rationality. Such studies simulate a representative sample of U.S. households that attempt to "smooth" their standard of living over their lifetime while facing typical uncertainties about wages, unem-

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1. Households' consumption spending typically declines at retirement, and researchers have studied that decline extensively to determine whether it is planned or unexpected. A recent paper suggests that in most cases, reductions in consumption at retirement are planned and apparently result mainly from lower work-related expenses and from the substitution of home production for consumption spending (for instance, home-cooked meals instead of restaurant meals); see Michael Hurd and Susann Rohwedder, *The Retirement-Consumption Puzzle: Anticipated and Actual Declines in Spending at Retirement*, Working Paper No. 9586 (Cambridge, Mass.: National Bureau of Economic Research, March 2003), available at www.nber.org/papers/w9586.pdf. However, another recent paper suggests that roughly 10 percent to 20 percent of households experience an unexpected decline in consumption at retirement because they failed to anticipate their needs; see Erik Hurst, "Grasshoppers, Ants, and Pre-Retirement Wealth: A Test of Permanent Income Consumers" (draft, University of Chicago, February 2003), available at http://gsbwww.uchicago.edu/fac/erik.hurst/research/grasshopper_feb2003_harvard.pdf.

2. To some people, health care for the elderly is not a matter of consumer choice (something to be paid for out of older households' income in the same way as, for instance, housing or food). Thus, it is not clear whether medical expenditures should be considered when estimating whether elderly households' assets are "sufficient" or not.

3. AARP Public Policy Institute, *Out-of-Pocket Spending on Health Care by Medicare Beneficiaries Age 65 and Older: 1999 Projections*, Issue Brief No. 41 (Washington, D.C.: AARP, December 1999), available at http://research.aarp.org/health/ib41_hspend.pdf.

ployment, and longevity.[4] In that approach, if real households with similar characteristics are saving less (or more) than those simulated ones, the studies conclude that households are saving too little (or too much).

Neither the replacement-rate approach nor the model-based approach specifies an absolute standard of adequacy. As a result, either approach may conclude that a working household living in poverty is saving adequately if its saving ensures that it will have an equally low income in retirement. Conversely, those approaches may conclude that some households are undersaving (according to a particular definition of an adequate replacement rate or a particular degree of consumption "smoothing") even if the households' saving rates are sufficient to keep them well above the official poverty level in retirement.

Comprehensiveness

In analyzing retirement preparedness, the critical issue is whether baby boomers have (or will acquire) enough wealth to ensure an adequate stream of income in retirement. Current income and saving are important in such analyses only because income is a source of saving, and saving is a source of wealth. In recognition of those facts, most recent studies focus on measures of wealth. However, some studies deal mainly with income because it is generally easier to measure than wealth and it approximates households' ability to accumulate wealth.

The most accurate measure of retirement preparedness is one that accounts for how quickly households are spending the wealth they are likely to have over their lives. That measure is a complex concept that bears little relation to conventional measures of current saving and that requires estimating future as well as current income.

Components of Wealth

For analyses of retirement preparedness, the relevant measure of wealth is a broad one, which includes both real assets (property) and financial assets, expected bequests and government benefits, and the value of retirees' time. It also nets out liabilities, such as credit card debt and mortgages.

Different studies measure different components of wealth, and few studies include all components. Some analysts argue that certain types of wealth should be given less weight or not be counted at all. For instance, some analysts contend that it is inappropriate to count all future Social Security or Medicare payments expected under current law as wealth, since budgetary pressures over the long run could cause benefits to be cut. Some researchers also argue that some or all housing wealth should not be counted as part of a household's assets for the purposes of gauging retirement preparedness, because retired people who own homes usually rely on them for housing and tend to be reluctant to tap into housing wealth for other purposes. Other analysts counter that elderly homeowners can gain access to their housing wealth through reverse mortgages and often use that wealth to finance serious needs late in life.[5]

As a general rule, the more types of wealth that a study counts, the larger the share of the population that appears to be prepared for retirement. Although the most recent studies typically include more components of wealth than older studies did, no research has successfully incorporated all of the types of wealth discussed here, with due regard to the uncertainties surrounding future government benefits.

Projecting Future Resources

Including projections in an analysis also introduces a great deal of uncertainty. Not only are future circumstances unclear, but so are baby boomers' likely re-

4. Eric M. Engen, William G. Gale, and Cori E. Uccello, "The Adequacy of Retirement Saving," *Brookings Papers on Economic Activity*, no. 2 (1999).

5. See Louise Sheiner and David Weil, *The Housing Wealth of the Aged*, Working Paper No. 4115 (Cambridge, Mass.: National Bureau of Economic Research, July 1992), available at www.nber.org/papers/w4115.

sponses to those circumstances. Thus, researchers must make assumptions about such unknowns as:

- How much boomers will earn and save;
- When they will decide to retire and how long they will live;
- What returns they will earn on their assets;
- How much income they will receive from defined-benefit pensions;
- The likelihood and size of their government benefits; and
- Changes such as divorce, widowhood, and illness.

Differences in those assumptions contribute to differences in studies' results. Assumptions about retirement age are particularly important because people who retire early have a shorter working life over which to accumulate wealth—and need to accumulate more—than do people who retire at a later age.[6] Most studies that attempt some sort of projection assume that people will retire at a set age, typically 62 or 65. However, it may be more reasonable to assume that many people, finding their retirement assets inadequate at their planned retirement age, will choose to work longer.[7]

A simple example illustrates the importance of such assumptions: one study found that households who are nearing retirement and who are in the middle of their cohort's wealth distribution may need a saving rate of about 18 percent to maintain their working-age consumption in retirement if they plan to retire at age 62—but only a 9 percent rate if they work until age 65.[8] *(For more-detailed examples, see Box 1 on pages 18-19.)*

Cohorts

To determine whether economic developments have disparately affected people born at different times, nearly all studies that analyze the baby-boom generation break it down into at least two cohorts: people born between 1946 and 1954 and those born between 1955 and 1964. Some studies subdivide that generation even further, and at least one study examines representative households born roughly 10 years apart between 1945 and 1965 (even though the first and last cohorts fall slightly outside the baby-boom generation as generally defined).

Most of the studies discussed in this report focus on the retirement prospects of boomers, but several examine the outlook for broader groups that include boomers and other cohorts. Others look only at preboomer cohorts that are or were recently approaching retirement. Because boomers' financial behavior does not appear to differ greatly from that of other generations, those studies are likely to provide useful information about boomers, too.

Sampling

Studies of income and wealth inevitably rely on limited samples of the population and use statistical techniques to draw inferences about the total population from those samples. In most cases, the samples come from one or more of the following surveys.

- The Survey of Income and Program Participation (SIPP), which has been conducted by the Census Bureau since 1984, is designed to measure the effectiveness, costs, and coverage of government programs and to provide improved national statis-

6. However, early retirement at a low level of income may be considered an individual choice to trade income for leisure and, as such, may not necessarily be a cause for concern.

7. Labor force participation among men age 65 or older, which was nearly 46 percent in 1950, dipped to less than 16 percent in 1993. It has gradually risen since then, however, exceeding 18 percent during the first three quarters of 2003. (Part of that increase results from changes in 1994 in the way the data are collected.)

8. See James F. Moore and Olivia S. Mitchell, "Projected Retirement Wealth and Saving Adequacy," in Olivia S. Mitchell, P. Brett Hammond, and Anna M. Rappaport, eds., *Forecasting Retirement Needs and Retirement Wealth* (Philadelphia: University of Pennsylvania Press, 2000), pp. 68-94.

tics on income distribution. The SIPP samples tens of thousands of civilian U.S. households for periods of up to four years and collects data on their general demographic characteristics, sources and amounts of income, and eligibility for and participation in government programs.[9]

- The Survey of Consumer Finances (SCF), sponsored by the Federal Reserve Board and the Department of the Treasury, began in the early 1960s and has been conducted every three years since 1983. It interviews a random sample of about 4,500 families and collects highly detailed information about their finances.[10]

- The Panel Study of Income Dynamics (PSID) has been conducted by the University of Michigan's Institute for Social Research since 1968. It gathers economic, demographic, and sociological data on samples of U.S. individuals and families over long periods. It has also collected data on savings and assets, generally every five years. The sample size grew from 4,800 families in 1968 to more than 7,000 families in 2001, and as of 2001, the PSID had collected information about more than 62,000 people over as much as 34 years.[11]

- The Health and Retirement Survey (HRS), also from the University of Michigan's Institute for Social Research and sponsored by the National Institute on Aging, has interviewed random samples of about 22,000 people over the age of 50 every two years since 1992. It collects data on physical and mental health, insurance coverage, financial status, family support systems, labor market status, and retirement planning.[12]

- The Consumer Expenditure Survey (CEX), carried out by the Bureau of Labor Statistics since 1980, collects information on demographic characteristics and annual income, expenditures, and saving from random samples of about 7,500 households representative of the U.S. noninstitutionalized population. It provides the basic data used to create the consumer price index.[13]

- The Current Population Survey (CPS), a monthly survey of about 50,000 households conducted by the Census Bureau for the Bureau of Labor Statistics, is the basic source of information about detailed characteristics of the U.S. labor force. It collects data on demographic and occupational characteristics, employment, unemployment, hours worked, and earnings.[14]

Studies of retirement preparedness may draw on sources of aggregate data as well as individual data. Those sources include the Federal Reserve Board's flow-of-funds accounts, which measure quarterly and annual changes in total assets held by sectors of the economy, including households, and the national income and product accounts, which provide quarterly and annual aggregate measures of economic activity, including personal saving. Those two sources use different concepts and therefore yield different measures of saving: the NIPAs measure saving from disposable income, whereas the flow-of-funds accounts also measure changes in wealth because of capital gains.[15]

9. For further information about the SIPP, see www.sipp.census.gov/sipp/.

10. For further information about the SCF, see www.federalreserve.gov/pubs/oss/oss2/scfindex.html.

11. For further information about the PSID, see http://psidonline.isr.umich.edu/.

12. For further information about the HRS, see http://hrsonline.isr.umich.edu/.

13. For further information about the CEX, see www.bls.gov/cex/home.htm.

14. For further information about the CPS, see www.bls.census.gov/cps/cpsmain.htm.

15. For further information about the flow-of-funds accounts, see www.federalreserve.gov/releases/z1/ffguide.htm. For further information about the NIPAs, see www.bea.gov/bea/an/nipaguid.htm.

Box 1.

The Effect of Retirement Age on the Need for Saving

Even if they have not saved much, households can often meet their retirement needs by working just a few years longer and saving slightly more of their income. By extending their working lives, households have more time to save and to earn returns on their previous savings; they also reduce the number of years of retirement income they need to finance. People in their mid-60s can typically expect to live another 18 years, so each year they continue to work lessens their retirement needs by several percent and increases the value of their assets by the annual rate of return, plus any additional saving. Moreover, by delaying their application for Social Security benefits, households can increase their benefit payments substantially, thus reducing the share of their needs they must finance from their own assets. Taken together, those factors can decrease needed retirement assets by 10 percent or more for every additional year of work after age 62.

As an illustration, consider a married couple in their early 60s earning $62,000 per year (roughly the median before-tax income of married households in the decade before retirement) who have no pension plan. After federal and state income taxes and Social Security taxes are deducted, the couple typically take home $48,943 in income. Thus, in retirement, they will need about $39,154 per year in order to replace 80 percent of their preretirement income (a percentage that financial planners often recommend to allow most people to continue their previous standard of living).

If both members retire at 62, the couple will receive $17,735 in Social Security benefits annually. Therefore, to achieve the 80 percent replacement rate, they will have to finance $21,419 of income per year themselves—for 21 years, if they reach the average U.S. life expectancy for people in their mid-60s. Assuming a 3 percent real (inflation-adjusted) rate of return on their assets, they will need to accumulate about $330,170 before retirement to produce that amount of income *(see the table at right)*.[1]

If the couple retire one year later, however, they will receive about $19,279 in Social Security benefits and will need to finance $19,875 per year themselves for 20 years; thus, they will have to accumulate only about $295,680 in assets before retiring. That latter figure continues to decline for each year the couple delay retirement—to about $225,330 if they retire at age 65 and to only about $77,060 if they retire at 70. The effect is even more dramatic for a single person earning roughly the median before-tax income of individuals in the decade before retirement *(see the table)*.

Not only does each additional year of work increase Social Security benefits and reduce the amount of wealth needed at retirement, but it also increases the amount of time that working households have to earn returns on their savings. As a consequence, if the married couple described above reaches age 62 with $192,365 in savings—only 58 percent of the assets they need to retire immediately—they can still retire with sufficient assets at age 65 by saving 10 percent of their income. Likewise, by continuing to work and saving 10 percent of their income, the household can still retire comfortably at 70 even if they reach age 62 with only $26,476 in savings.

The effect of retirement age on saving rates applies to workers long before retirement. For example, a couple making $62,000 per year who have $167,670 in retirement assets at age 55 would need to save 33 percent of their income to accumulate the $330,170 in assets necessary to retire at an 80 percent replacement rate of after-tax income by age 62 (assuming a 3 percent real rate of return). But they already have enough money saved to retire at age 65.

1. All of the values in this example are in 2003 dollars.

Box 1.

Continued

An Illustration of How Retirement Age Affects the Total Assets Needed in Retirement (In 2003 dollars)

Retirement Age	80 Percent of Preretirement After-Tax Income	Annual Social Security Payments[a]	Additional Retirement Income (Besides Social Security) Needed to Achieve 80 Percent of Preretirement Income	Assets Needed at Retirement to Produce That Additional Income[b]
Married Couple Earning $62,000 per Year Before Taxes				
62	39,154	17,735	21,419	330,170
63	39,154	19,279	19,875	295,680
64	39,154	20,958	18,196	260,630
65	39,154	22,770	16,384	225,330
66	39,154	24,591	14,563	191,740
67	39,154	26,517	12,638	158,740
68	39,154	28,593	10,561	126,080
69	39,154	30,832	8,322	94,010
70	39,154	31,908	7,246	77,060
Single Person Earning $24,000 per Year Before Taxes				
62	15,555	7,629	7,927	122,190
63	15,555	8,283	7,272	108,190
64	15,555	8,994	6,561	93,980
65	15,555	9,760	5,795	79,700
66	15,555	10,530	5,025	66,160
67	15,555	11,344	4,211	52,890
68	15,555	12,221	3,334	39,800
69	15,555	13,166	2,389	26,990
70	15,555	13,620	1,935	20,580

Source: Congressional Budget Office.

Note: The first example assumes a married couple earning $62,000 (roughly the median annual income of married households ages 55 to 64) solely from wages, with one member of the couple earning twice as much as the other. The couple pays annual federal income taxes of $6,260 (filing jointly), state income taxes of $2,054, and Social Security taxes of $4,743 and has an after-tax income of $48,943. The second example assumes a single person earning $24,000 (roughly the median annual income of single households ages 55 to 64) solely from wages, paying annual federal income taxes of $2,080 (filing individually), state income taxes of $640, and Social Security taxes of $1,836 and having an after-tax income of $19,444. Those taxes (including average state income taxes) are calculated using 2003 rates specified in the National Bureau of Economic Research's TAXSIM model (available at www.nber.org/~taxsim/taxsim-calc5/). For simplicity, the examples assume that retirement income is not taxed, that people have typical life expectancies, and that they die at predictable dates leaving no bequests.

a. Taken from the Social Security Administration's "Social Security Quick Calculator" (available at www.ssa.gov/OACT/quickcalc/calculator.html).

b. Assuming a real rate of return of 3 percent.

For analyzing the retirement preparedness of the baby-boom generation, each of the sets of data described above has strengths and weaknesses. For example, the Survey of Consumer Finances provides highly detailed financial data—including more information about very wealthy people than any other sample—but only at a point in time. The Panel Study of Income Dynamics provides less detail but tracks particular individuals and households over time. The Health and Retirement Survey offers details on health status and insurance coverage as well as on financial assets, but it tracks only people over age 50.

Demographic and Socioeconomic Detail

Studies of retirement preparedness generally present statistics for a number of demographic and socioeconomic variables, such as income and wealth for different groups classed by age cohort, sex, race or ethnicity, marital status, and so forth. Summary statistics include mean (average) values—for example, total wealth divided by total population—as well as means for particular segments of the population, ranked by income or wealth.

Because income and wealth are unequally distributed, studies usually present medians (values for the middle person or household in a ranking) as well as means. With very skewed distributions, a median more accurately represents the typical person or household than a mean does.

CHAPTER

5

Major Recent Studies of Retirement Preparedness

This chapter reviews the major studies of retirement preparedness that have been published in the past decade—grouped according to their approach and the populations they cover—and draws general conclusions from their findings. *(Those studies, presented by date of publication, are summarized in Table 1 on pages 24-27.)* Overall, the studies suggest that the average baby boomer's prospects for a comfortable retirement are good but that some boomers could face serious challenges.

Studies That Compare Baby Boomers with Preceding Generations

A 1993 study by the Congressional Budget Office and a related paper by John Sabelhaus and Joyce Manchester compared the income and wealth of baby boomers during their early working years (ages 25 to 44) with those of the preceding generation at the same age, nearly 30 years earlier.[1] A similar 1993 study by Richard Easterlin and coauthors compared the income and wealth of boomer cohorts with those of several older cohorts.[2] Both studies concluded that boomers generally had higher income and wealth than their predecessors had possessed at the same age, were saving similar percentages as preceding cohorts, and thus were likely to enjoy higher income in retirement.

The Easterlin study attributed much of that improvement to the massive entry of women into the labor force and their propensity to have fewer children—trends that increased household income while reducing expenditures on raising children. However, the study also noted that the improvement in living standards was distributed very unevenly: households in the highest 10 percent (or decile) of the income distribution were far better off than their predecessors, but those in the lowest income decile had the same or even lower real (inflation-adjusted) income than in the previous generation.[3]

1. Congressional Budget Office, *Baby Boomers in Retirement: An Early Perspective* (September 1993); and John Sabelhaus and Joyce Manchester, "Baby Boomers and Their Parents: How Does Their Economic Well-Being Compare in Middle Age?" *Journal of Human Resources*, vol. 30, no. 4 (Fall 1995), pp. 791-806.

2. Richard A. Easterlin, Christine M. Schaeffer, and Diane J. Macunovich, "Will the Baby Boomers Be Less Well Off Than Their Parents? Income, Wealth, and Family Circumstances Over the Life Cycle in the United States," *Population and Development Review*, vol. 19, no. 3 (September 1993), pp. 497-522. That study measured income "per adult equivalent," an approach that adjusts the size of a household for the fact that children do not consume as much as adults do.

3. Households with higher income tend to save a larger share of their income and to have more wealth than low-income households do, but the correlation between income and wealth is not ironclad. Low-income households receive higher Social Secu-

A 1994 study by researchers at AARP, using their pension and retirement income simulation model, projected boomers' incomes in retirement in 2010 and 2030 and compared them with the incomes of current retirees.[4] That study predicted generally higher incomes for boomers than for current retirees but also substantial diversity in outcomes, with a gradually widening gap between the best-off and worst-off households. According to the study's assumptions, by 2030, roughly three-quarters of boomer households would receive income from a combination of Social Security, assets, and private pensions; most of the rest would get income from two of those three sources. The study projected that by 2030, Social Security would account for about 38 percent of all boomer income, pensions for 24 percent, assets for 23 percent, and earnings for about 14 percent.[5] Higher-income households would receive proportionately more of their retirement income from pensions and assets than other boomers would, whereas those in the lowest one-fifth (quintile) of the income distribution would receive nearly 80 percent of their income from Social Security.

Although Social Security was expected to help narrow income disparities, the 1994 AARP study estimated that in 2010, roughly 3 percent of boomer households would be living in poverty and 10 percent in near-poverty.[6] Those figures were projected to fall by 2030: to 2 percent in poverty and 5 percent in near-poverty. A more recent study sponsored by AARP reached slightly less optimistic conclusions. It predicted that the poverty rate would be about 6 percent for boomer households by 2020 and about 3 percent by 2040.[7] (In 2001, by comparison, about 12 percent of households age 60 or older had incomes below the poverty level.)

A 2002 study by Eric Toder and coauthors reached fairly similar conclusions using projections of retirement income from the Social Security Administration's Model of Income in the Near Term to estimate poverty rates of future elderly households.[8] That study projected that only about 4 percent of households age 62 or older would be living below the official poverty line in 2020, down from about 8 percent in the early 1990s. The study attributed the decline in poverty rates to rising real wages, offset in part by other expected changes—mainly the increase in the age of eligibility for full Social Security benefits that is under way, as well as projected changes in marital status.

Studies That Compare Boomers' and Preboomers' Saving with "Needed" Saving

A parallel body of research has focused on whether baby boomers' saving rates are likely to yield enough

rity benefits in retirement relative to their lifetime earnings, and some save assiduously as well. See Steven F. Venti and David A. Wise, *Choice, Change, and Wealth Dispersion at Retirement*, Working Paper No. 7521 (Cambridge, Mass.: National Bureau of Economic Research, February 2000), available at www.nber.org/papers/w7521. For a discussion of the correlation between income and saving, see Karen E. Dynan, Jonathan Skinner, and Stephen P. Zeldes, *Do the Rich Save More?* Working Paper No. 7906 (Cambridge, Mass.: National Bureau of Economic Research, November 2000), available at www.nber.org/papers/w7906.

4. American Association of Retired Persons, *Aging Baby Boomers: How Secure Is Their Economic Future?* (Washington, D.C.: AARP, 1994).

5. In 2000, by comparison, elderly households also received about 38 percent of their income from Social Security, but income from pensions and assets each accounted for only 18 percent, and earnings accounted for 23 percent. See Social Security Administration, *Annual Statistical Supplement to the Social Security Bulletin, 2001* (December 2001).

6. The AARP study defined near-poverty as a level of income between 100 percent and 150 percent of the federal poverty level. (The Census Bureau's definition of near-poverty, by contrast, extends from 100 percent to 125 percent of the poverty level.)

7. See Karen Smith, *How Will Recent Patterns of Earnings Inequality Affect Future Retirement Incomes?* Working Paper No. 2003-06 (Washington, D.C.: AARP, May 2003), available at http://research.aarp.org/econ/2003_06_retire.pdf.

8. See Eric Toder and others, *Modeling Income in the Near Term: Revised Projections of Retirement Income Through 2020 for the 1931-1960 Birth Cohorts* (Washington, D.C.: Urban Institute, June 2002), available at www.urban.org/url.cfm?ID=410609.

retirement wealth to maintain working-age consumption levels in retirement. That research is based on the assumption that people try to avoid sharp swings in their consumption and thus set aside resources while they are working to make sure they will be able to keep the same standard of living when they retire.

Estimating Preparedness Using Projections

Studies of that type by Douglas Bernheim, published from 1993 to 1997, reported evidence of significant undersaving—in contrast to the relative optimism of studies that compared boomers with their parents.[9] Bernheim used phone surveys to measure the personal savings, expected Social Security income, and pensions of at least 2,000 boomer households and then used those data to project future income and wealth accumulation. On the basis of those sources, he consistently found that personal saving rates were much lower than required to cover the portion of retirement needs that those households would have to pay for themselves—assuming they wished to retire at age 65, remain in their homes, and keep roughly constant levels of consumption over their working and retirement years.

Under the assumption that households' savings would be used entirely to generate retirement income, Bernheim concluded that, on average, households were saving only 45 percent to 62 percent of what they needed to be adequately prepared for retirement. If only those savings specifically earmarked for retirement were assumed be used for it, households were saving just 15 percent to 27 percent of what they needed, he found. Under midpoint assumptions, Bernheim concluded that households were saving 36 percent to 38 percent of the amount necessary. Those midpoint estimates became the basis of a widespread view that boomers were accumulating only about one-third of the assets they needed to be adequately prepared for retirement.

Those studies' conclusions, however, were based on a rather pessimistic assumption about the real rate of return on assets, which necessitated high rates of saving to reach target levels of retirement wealth. Moreover, the measure of wealth used in those reports excluded home equity, which is the major asset of most U.S. households. In a 1997 reexamination of Bernheim's 1993 calculations, William Gale found that if housing equity was included in the measure of wealth, about two-thirds of boomer households appeared to be accumulating the minimum wealth they would need for retirement, given their age and other factors.[10] He concluded that in general terms, about one-third of households were preparing adequately by any measure, another third were preparing well by some standards but not by others, and the remaining third were preparing poorly.

More-recent studies, using slightly different approaches and population samples, reached largely the same general conclusion that Gale did. For example, a 1998 study by Yonkyung Yuh and coauthors, applying a broad measure of wealth to a sample of boomer and preboomer households, found that about half were on track to accumulate adequate retirement wealth by their planned retirement age.[11] The households in that half shared various characteristics: they were typically older, better educated, and had higher income than other boomer households; they tended to be white, non-Hispanic, and married; they typically owned a home and some stock and participated in defined-contribution or defined-benefit pension plans; they

9. B. Douglas Bernheim, *Is the Baby Boom Generation Preparing Adequately for Retirement? Summary Report* (Princeton, N.J.: Merrill Lynch, January 15, 1993); B. Douglas Bernheim, *The Merrill Lynch Baby Boom Retirement Index* (Princeton, N.J.: Merrill Lynch, July 1994); B. Douglas Bernheim, *The Merrill Lynch Baby Boom Retirement Index: Update '95* (Princeton, N.J.: Merrill Lynch, February 1995); B. Douglas Bernheim, *The Merrill Lynch Baby Boom Retirement Index: Update '96* (Princeton, N.J.: Merrill Lynch, April 1996); and B. Douglas Bernheim, "The Adequacy of Personal Retirement Saving: Issues and Options," in David A. Wise, ed., *Facing the Age Wave*, Publication No. 440 (Stanford, Calif.: Hoover Institution Press, 1997), pp. 30-56.

10. William G. Gale, "The Aging of America: Will the Baby Boom Be Ready for Retirement?" *Brookings Review*, vol. 15, no. 3 (Summer 1997), pp. 4-9.

11. Yonkyung Yuh, Catherine Phillips Montalto, and Sherman Hanna, "Are Americans Prepared for Retirement?" *Financial Counseling and Planning*, vol. 9, no. 1 (1998), pp. 1-13.

Table 1.

Major Studies of Retirement Preparedness Published in the Past Decade

	Bernheim (1993-1997)	CBO (1993)	Easterlin and Others (1993)	AARP (1994)
Group Studied	Households headed by people born from 1946 to 1956 (older boomers)	Households headed by people born from 1946 to 1964 (baby boomers)	Households headed by people born in five-year cohorts from 1946-1950 through 1961-1965 (baby boomers)	Households headed by people born from 1946 to 1964 (baby boomers)
Measure of Adequacy	Comparison of financial saving with the saving needed to maintain preretirement living standards in retirement	Comparison of boomers' income and wealth with those of households at same age 30 years earlier	Comparison of boomer cohorts' income (per adult equivalent) and wealth with those of several older cohorts	Comparison of boomers' projected household income in 2010 and 2030 with that of elderly households in 1990
Assumed Interest, Discount, and Time-Preference Rates	Real interest rate based on past U.S. Treasury bill rates and consumer price index; 1 percent rate of time preference	Not applicable	Not applicable	2.3 percent real rate of return
Measure of Net Wealth	Financial retirement assets plus zero, 50 percent, or 100 percent of financial assets not earmarked for retirement	Real financial assets, home equity, and pension assets that can be borrowed against	Financial assets, home equity (for all cohorts), and liquid pension assets (for 1945-1954 cohorts only)	Financial assets, home equity, pensions, and Social Security
Assumptions About Life Expectancy	Not available	Not applicable	Not applicable	Social Security Administration's 1991 base-case and alternative projections
Data Set Used	Annual telephone surveys of more than 2,000 households	Census (1960), CPS (1990), SCF (1962 and 1989)	CPS (1965-1990)	CPS (1991), ICF Pension/Social Security Database
Conclusions	Under midpoint assumptions, boomer households' saving rates are 34 percent to 38 percent of amount required to meet financial portion of preretirement needs (assuming retirement at 65, remaining in home, and smoothing of consumption between working years and retirement). Under assumption that Social Security payments will be cut by 35 percent, boomer households' saving adequacy is only 18 percent to 22 percent	In general, boomers are expected to have more income and wealth in retirement than the previous generation, as well as higher pension and Social Security benefits. However, boomers with poor education or who do not own homes may not be as well off as the prior generation	Boomers as a whole are better off in terms of income per adult equivalent and wealth than their parents, though most of the improvement stems from women's working and having fewer children. Boomers have roughly the same saving rates as their parents at similar ages. Top 10 percent are far better off than their predecessors; bottom 10 percent are the same or worse off	In general, boomers will have more income in retirement than elderly people did in 1990. Three-quarters will receive a mix of Social Security, assets, and pensions; most of the rest will have a combination of two. In 2030, 38 percent of boomers' total income will come from Social Security, 24 percent from pensions, 23 percent from assets, and 14 percent from work. Social Security will make up 80 percent of income for lowest one-fifth of the income scale

(Continued)

Table 1.

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	Kotlikoff and Auerbach (1994)	Gale (1997)	Moore and Mitchell (1997)	Gustman and Steinmeier (1998)	Yuh and Others (1998)
Group Studied	Individuals born in 1946, 1955, and 1964 (baby boomers)	Married households with a working husband born from 1946 to 1964 (baby boomers)	Households headed by people born from 1931 to 1941 (preboomers)	Households headed by people born from 1931 to 1941 (preboomers)	Households headed by working people born from 1925 to 1960 who indicate a planned age of retirement (preboomers plus boomers)
Measure of Adequacy	Comparison of boomer cohorts' projected average income and consumption at age 65 with that of individuals age 65 in 1992	Comparison of financial saving with the saving needed to maintain preretirement living standards in retirement	Ability to preserve preretirement consumption, assuming retirement at age 62 or 65	Ability to replace preretirement income at expected retirement age through a two-thirds joint-and-survivors benefit annuity	Ability to preserve preretirement consumption, assuming retirement at planned age
Assumed Interest, Discount, and Time-Preference Rates	6 percent real before-tax rate of return	Real interest rate based on past U.S. Treasury bill rates and consumer price index; 1 percent rate of time preference	Historical financial rates of return from Ibbotson Associates; no real housing appreciation	2.3 percent real rate of return	Asset-specific historical rates of return (including real estate) from Ibbotson Associates
Measure of Net Wealth	Financial assets, home equity, pensions, Social Security, value of Medicare and Medicaid benefits	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security (all net of taxes and debt)	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security
Assumptions About Life Expectancy	Not applicable	Not applicable	Social Security Administration's actuarial tables	Social Security Administration's actuarial tables	1998 IRS Actuarial Annuity Tables by sex and retirement age
Data Set Used	CEX, CPS, SIPP, SCF (various years)	SCF (1983-1992)	HRS (1992)	HRS (1992)	SCF (1995)
Conclusions	Under most optimistic policy scenario, boomers will average higher consumption in retirement than they or current retirees do now, mostly because of a projected rise in medical benefits. Younger boomers will fare worse than older ones. Forty percent to 50 percent of boomers will fare worse than the average current retiree	Accounting for all net housing assets, 71 percent of households were saving adequately in 1992; accounting for half of housing assets, 63 percent were; accounting for no housing assets, 48 percent were. Excluding home equity, median inadequacy of retirement wealth equaled 4-5 months of current income	31 percent to 40 percent of households are already prepared; median household in wealth distribution needs to save 9 percent to 18 percent of income; poor households face substantial shortfalls. However, for most households, actual saving rates are about one-quarter to one-third of prescribed rates	On average, households will be able to achieve a permanent real replacement rate of 60 percent. Ranked by wealth, the median household will achieve a 50 percent real replacement rate; ranked by lifetime earnings, 67 percent will. Low-earning and low-wealth households will achieve much lower rates	About 52 percent of households are on track to accumulate adequate retirement wealth

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Table 1.

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	Engen, Gale, and Uccello (1999, 2002)	Gist, Wu, and Ford (1999)	Bernheim and Others (2000)	Warshawsky and Ameriks (2000)
Group Studied	Married working households headed by people born from 1931 to 1941 (preboomers), or with a working husband born from 1921 to 1970 (preboomers, boomers, and postboomers)	Households headed by people born from 1946 to 1964 (boomers) and representative single and married households with median income and net wealth, headed by a person born in 1950 or 1960 (older or younger boomers)	Households headed by people born from 1931 to 1941 (preboomers)	Households with at least one full-time worker, with respondent or spouse born from 1921 to 1967 (preboomers, boomers, and postboomers)
Measure of Adequacy	Comparison of distribution of actual households' wealth with that of simulated households' wealth, assuming reasonable economic behavior in the face of uncertainty and retirement at 62 or 65	Ability to replace 80 percent of preretirement earnings, assuming retirement at age 66 or 67	Ability to sustain a constant living standard before and after retirement	Ability to replace 80 percent of real current living expenses
Assumed Interest, Discount, and Time-Preference Rates	3 percent after-tax real rate of return; zero and 3 percent rate of time preference	3.9 percent real rate of return (net of administrative expenses), no housing appreciation	3 percent real rate of return	6 percent to 10 percent nominal rate of return, depending on risk preference
Measure of Net Wealth	Financial assets, 50 percent to 100 percent of home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security
Assumptions About Life Expectancy	Social Security Administration's actuarial tables	Social Security Administration's actuarial tables	Social Security Administration's actuarial tables	Ten years beyond conventional life expectancy
Data Set Used	HRS (1992), SCF (1983-1998)	SIPP (1993), SCF (1995), PSID (1994)	HRS (1992)	SCF (1992)
Conclusions	Simulations suggest a majority of married working households of all ages are accumulating enough wealth for retirement, with evidence of undersaving in the bottom quarter of the income and wealth distributions	Median households must save 3 percent to 9 percent of annual income with a pension (assuming modest income growth), 6 percent to 14 percent without a pension, 16 percent to 29 percent with long life and low returns	For households with annual income of $15,000 or more, median recommended saving rate ranges from 13 percent to 23 percent. Assuming significant cuts to future Social Security benefits, median recommended rate ranges from 19 percent to 25 percent	48 percent of households are adequately preparing for retirement. Of the rest, 15 percent will retire without financial assets; 20 percent will run out within 10 years of retirement; another 10 percent within 20 years; and another 5 percent within 30 years. The average underfunded household faces 19 years of unfunded living expenses

(Continued)

Table 1.

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	Montalto (2001)	Toder and Others (2002)	Wolff (2002)	Scholz, Seshadri, and Khitatrakun (2003)
Group Studied	Households headed by working people born from 1928 to 1963 who indicate a planned age of retirement (preboomers plus boomers)	Households headed by people born from 1931 to 1960 (preboomers plus boomers)	Households headed by working people born from 1919 to 1951 (largely preboomers)	Households headed by people born from 1931 to 1941 (preboomers)
Measure of Adequacy	Ability to maintain projected preretirement consumption, assuming retirement at planned age	Comparison of poverty rates among future older households with those among current older households; replacement rates	Ability to replace preretirement income (using projected retirement wealth and assuming retirement at age 65), and retirement income relative to poverty level	Comparison of actual households' wealth with wealth of simulated households, assuming reasonable economic behavior in the face of uncertainty and retirement as expected by households
Assumed Interest, Discount, and Time-Preference Rates	Asset-specific historical rates of return (including real estate) from Ibbotson Associates	3 percent real rate of return	3 percent to 7 percent real rate of return	4 percent real rate of return
Measure of Net Wealth	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security	Financial assets, home equity, pensions, Social Security
Assumptions About Life Expectancy	1998 IRS Actuarial Annuity Tables by sex and retirement age	Not available	Social Security Administration's actuarial tables	1992 life tables of the Centers for Disease Control and Prevention
Data Set Used	SCF (1998)	HRS, PSID, SIPP (1990-1993)	SCF (1983-1998)	HRS (1992)
Conclusions	About 56 percent of households are on track to be able to maintain preretirement level of consumption	Price-adjusted poverty rates among households ages 62 and older will fall from about 8 percent in the early 1990s to around 4 percent in 2020	Median total wealth of households headed by people ages 47 to 64 fell by 17 percent between 1983 and 1998; households with income-replacement rates of less than half rose from 30 percent in 1989 to 43 percent in 1998	Under basic assumptions, more than 80 percent of households are accumulating enough retirement wealth; excluding half of home equity, 58 percent are; assuming a 25 percent cut in Social Security benefits, 64 percent are

Source: Congressional Budget Office based on the studies shown here (full citations can be found in the bibliography of this report).

Note: CEX = Consumer Expenditure Survey, CPS = Current Population Survey, HRS = Health and Retirement Survey, ICF = ICF Consulting (formerly ICF Kaiser), IRS = Internal Revenue Service, PSID = Panel Study of Income Dynamics, SCE = Survey of Consumer Expenditures, SCF = Survey of Consumer Finances, SIPP = Survey of Income and Program Participation.

tended to save systematically; and they planned to retire after age 65.

A 1999 study by John Gist and coauthors reached similar conclusions while illustrating how strongly those findings depended on the study's assumptions.[12] That research analyzed two groups, older boomers (those born between 1946 and 1955) and younger boomers (those born between 1956 and 1964), and used a broad measure of wealth that included home equity, projected Social Security income, and pensions. Narrowing the focus to a set of representative single and married boomer households (some born early in the boom and others near the end) with median income and wealth, the study found that those households could meet their targets for retirement wealth by saving roughly 3 percent to 9 percent of their income per year. However, households' needed saving was very sensitive to assumptions about resources and needs. For instance, if boomers live beyond normal life expectancy and if returns on assets are relatively low in coming years, those representative households will need to save something on the order of 16 percent to 29 percent (rather than 3 percent to 9 percent) of their income each year to meet reasonable targets for retirement wealth.

Those conclusions were largely echoed in several studies that focused on the preparations of older, preboomer households who were already near retirement. For example, a 1997 study by James Moore and Olivia Mitchell concluded that 31 percent to 40 percent of such households in one sample were already adequately prepared for retirement and could accumulate enough assets to continue their preretirement consumption simply by reinvesting the returns from their current savings.[13] However, for most households, actual saving rates were roughly one-quarter to one-third of prescribed rates—similar to Bernheim's conclusions. Those households would need to increase their saving rate to maintain current levels of consumption into retirement. The typical older household in the middle of the wealth distribution would have to boost its saving rate to around 18 percent to maintain its preretirement income if it planned to retire at age 62 but to only about 9 percent if it planned to retire at age 65.

A 1998 study by Alan Gustman and Thomas Steinmeier examined the same group of preboomer households as Moore and Mitchell and developed estimates of each household's total wealth, including pension and Social Security wealth.[14] The study defined adequacy as a household's ability to purchase, upon retirement, a two-thirds joint-and-survivors benefit annuity that would replace the average yearly income that members of the household earned during their working life (adjusted for the lower expenses likely during retirement).[15] The authors concluded that most households appeared set to replace a substantial share of their preretirement earnings: when households were ranked by projected replacement rates, the median real replacement rate was about 60 percent. When households were ranked by wealth, the median household was projected to be able to replace 50 percent of its average yearly earnings after retiring. When house-

12. John R. Gist, Ke Bin Wu, and Charles Ford, *Do Baby Boomers Save and, If So, What For?* Publication No. 9906 (Washington, D.C.: AARP, June 1999), available at http://research.aarp.org/econ/9906_do_boomers.pdf.

13. James F. Moore and Olivia S. Mitchell, *Projected Retirement Wealth and Savings Adequacy in the Health and Retirement Study*, Working Paper No. 6240 (Cambridge, Mass.: National Bureau of Economic Research, October 1997), available at www.nber.org/papers/w6240. That study was later published as James F. Moore and Olivia S. Mitchell, "Projected Retirement Wealth and Saving Adequacy," in Olivia S. Mitchell, P. Brett Hammond, and Anna M. Rappaport, eds., *Forecasting Retirement Needs and Retirement Wealth* (Philadelphia: University of Pennsylvania Press, 2000), pp. 68-94.

14. Alan L. Gustman and Thomas L. Steinmeier, *Effects of Pensions on Savings: Analysis with Data from the Health and Retirement Study*, Working Paper No. 6681 (Cambridge, Mass.: National Bureau of Economic Research, August 1998), available at www.nber.org/papers/w6681.

15. That annuity would provide an inflation-adjusted level of income while the purchaser was alive. If the purchaser died and was survived by a spouse, the spouse would receive income equal to two-thirds of that level.

holds were ranked by lifetime earnings, the median household was projected to be able to replace about 67 percent of its average annual preretirement earnings. Households with low income and wealth, however, appeared likely to achieve much lower replacement rates.

A 2001 study by Catherine Montalto came to very similar conclusions, although it focused on a much wider age group (a sample of workers ranging in age from 35 to 70).[16] The study used information about each household's portfolio allocation, planned retirement age, and eligibility for Social Security benefits; rates of return on specific assets that were based on historical data; and projections of desired consumption levels and income needs in retirement. The study concluded that 56 percent of households were on track to maintain their preretirement consumption level in retirement. It also projected that the average U.S. household would receive 46 percent of its retirement wealth from Social Security, 39 percent from personal savings, and 14 percent from pensions. Planned retirement age varied widely among households and played an important role in the outcomes: households who planned a later retirement were generally more likely to be well prepared. On the whole, poorly prepared households tended to be younger, less educated, single, and nonwhite.

Estimating Preparedness with Financial-Planning Software

Similar findings also come from using financial-planning software to analyze retirement preparedness. Two studies published in 2000 compared households' actual saving rates with the rates recommended by popular software packages. One study, by Mark Warshawsky and John Ameriks, applied the Quicken Financial Planner program to data from an extensive set of survey respondents between the ages of 25 and 71, taking into account college expenses for dependents, housing wealth, expected retirement age, life expectancy, future Social Security and pension benefits, and a postretirement drop in living expenses.[17] That study found that under the authors' assumptions about future incomes and rates of return, about half of those households were on track to fully finance their retirement. The other half, however, were likely to run out of assets—15 percent were expected to reach retirement with no financial assets; 20 percent would run out of assets within a decade of retiring; another 10 percent within 20 years; and another 5 percent within 30 years. The study concluded that, on average, households would be able to fund 24 years of retirement, but the half who were not fully prepared would face an average of 19 years of unfunded living expenses, amounting to $300,000 (in 1992 dollars).

A similar study by Douglas Bernheim and coauthors in 2000 used the ESPlanner software package to calculate saving rates that would allow a sample of preboomer households to maintain a constant level of consumer spending for the rest of their lives, given their expected earnings and intended retirement age.[18] That software recommended very little saving for households in the bottom 15 percent or so of the income distribution, whose working-age income would be largely replaced by Social Security. For households with income of more than $15,000 per year, its median recommended saving rates ranged from 13 percent to 23 percent (depending on the households' current age and planned retirement age)—higher than those households' actual average rates of saving. Under the assumption that Social Security benefits will be cut in the future to bring the Social Security system into long-term balance, the program recommended even higher saving rates.

16. Catherine P. Montalto, *Retirement Wealth and Its Adequacy: Assessing the Impact of Changes in the Age of Eligibility for Full Social Security Benefits*, Working Paper 2001-07 (Chestnut Hill, Mass.: Boston College, Center for Retirement Research, September 2001), available at www.bc.edu/centers/crr/papers/wp_2001-07.pdf.

17. Mark J. Warshawsky and John Ameriks, "How Prepared Are Americans for Retirement?" in Mitchell, Hammond, and Rappaport, eds., *Forecasting Retirement Needs and Retirement Wealth*, pp. 33-67.

18. B. Douglas Bernheim and others, "How Much Should Americans Be Saving for Retirement?" *American Economic Review*, vol. 90, no. 2 (May 2000), pp. 288-292.

Estimating Preparedness Accounting for Uncertainty

A 1999 study by Eric Engen, William Gale, and Cori Uccello extended the financial-planning method of measuring retirement preparedness by comparing the income and wealth of a sample of real, largely pre-boomer households with the income and wealth of a sample of simulated households.[19] Unlike the planning software mentioned above, which does not incorporate much uncertainty about possible outcomes, the model used in that study simulates households' attempts to maintain a relatively constant standard of living while experiencing shocks to their circumstances, such as job losses, career changes, marriage, and illness.[20] As in real life, those shocks lead to different career and life outcomes, as households respond to changes in their income by adjusting their saving and wealth. As a consequence, households with very similar backgrounds and abilities can end up with very different levels of simulated income and wealth. However, in the simulation, households retire at a specific age (62 in the basic scenario and 65 in an alternative one) rather than adjusting how long they work to shifting economic circumstances.

Engen and his coauthors found that the distribution of actual households' levels of retirement preparedness was very similar to that of simulated households that had similar skills and life situations. However, real households at the bottom of the income distribution were not saving as much as simulated "rational" households, and real households at the top of the income distribution were saving much more. The authors concluded that most real households were accumulating adequate levels of wealth (accounting for the modeled uncertainties) but that households of all ages in the bottom quarter of the wealth-to-income distribution were clearly undersaving. However, they also noted that many of those households might not need to save much of their income to meet their retirement needs, given expected Social Security benefits, employer-provided pensions, part-time work during retirement, and other factors.

Engen and his colleagues found that the most important assumptions in the study involved the treatment of housing, the rate of time preference (the extent to which people prefer current consumption over future consumption), life expectancy, and health care costs. However, even assuming a fairly large increase in projected medical costs in retirement did not dramatically change the study's conclusions. In a 2002 update, the authors also found that fluctuations in the stock market did not greatly alter their estimates of the adequacy of households' retirement preparedness.[21]

A study published this year by John Karl Scholz, Ananth Seshadri, and Surachai Khitatrakun extended the approach taken by Engen and his colleagues.[22] Instead of comparing the range of preparedness levels of actual households and simulated households facing various realistic shocks, Scholz and his coauthors compared each specific household with its simulated counterpart. They concluded that more than 80 percent of households were accumulating enough wealth to maintain preretirement consumption levels through retirement, if all of their home equity was included as wealth. If only half of home equity was included, about 58 percent of households were accumulating sufficient wealth. If Social Security benefits were projected to be cut by 25 percent in the future, 64 percent of households were accumulating enough wealth (even with all home equity included in the measure).

19. Eric M. Engen, William G. Gale, and Cori E. Uccello, "The Adequacy of Retirement Saving," *Brookings Papers on Economic Activity*, no. 2 (1999).

20. In technical terms, simulated households attempt to smooth the discounted marginal utility of consumption over their working lives and retirement.

21. Eric M. Engen, William G. Gale, and Cori E. Uccello, "Effect of Stock Market Fluctuations on the Adequacy of Retirement Wealth Accumulation," draft (October 2002), available from the authors.

22. John Karl Scholz, Ananth Seshadri, and Surachai Khitatrakun, "Are Americans Saving 'Optimally' for Retirement?" draft (University of Wisconsin at Madison, September 22, 2003), available at www.ssc.wisc.edu/~scholz/Research/Adequacy_Version12.pdf.

Studies That Compare Preboomers' Wealth at Different Times

A 2002 study by Edward Wolff painted a more pessimistic picture of households nearing retirement (including the first few cohorts of baby boomers along with preboomers). It reported that among households headed by people ages 47 to 64, median retirement wealth declined by 11 percent between 1983 and 1998, and median total wealth fell by 17 percent.[23] The study found that the share of households who would be able to replace no more than half of their previous income during retirement climbed from 30 percent in 1989 to 43 percent in 1998. It also reported that the average household's projected Social Security benefits had fallen, partly because of legislation that raised the "normal retirement age" (the age of eligibility for full benefits), but mainly because of a projected decline in people's lifetime earnings.

Those results for preboomers suggest that the prospects of baby boomers, who will follow them into retirement, may be even worse. However, the study used unusual assumptions and projections to reach those conclusions. For example, its projection that people's lifetime earnings will decline—which is integral to its projection of falling Social Security wealth—is inconsistent with historical data, which show rising median incomes for the same cohorts. Moreover, the future claims on the Social Security system that were projected to exist under previous law (before the retirement age was changed) were unsustainable, which makes the part of the decline in Social Security benefits that results from that change largely theoretical.

Furthermore, the study assumed that workers covered by defined-benefit pension plans would remain at their current jobs, and it apparently counted at least some future accruals to those plans. At the same time, it ignored workers' and employers' potential future contributions to defined-contribution plans. That approach tends to exclude the increasing share of expected retirement wealth that will come from defined-contribution plans and thus tends to misinterpret the structural shift from defined-benefit plans to defined-contribution plans as a decline in wealth.

23. Edward N. Wolff, *Retirement Insecurity: The Income Shortfalls Awaiting the Soon-to-Retire* (Washington, D.C.: Economic Policy Institute, 2002).

Studies That Account for Impending Difficulties in Public Benefit Programs

Relatively few studies explicitly consider the long-term budgetary constraints that the Social Security and Medicare programs are expected to face and their potential impact on the retirement income of baby boomers. One such study, a 1994 analysis by Laurence Kotlikoff and Alan Auerbach, looked at several possible future policy changes, most of them involving tax increases or benefit cuts to correct those programs's funding imbalances.[24] Projecting average income, saving, taxes, and government benefits for each annual cohort well into the future, the authors assumed that the distribution of income among retirees would remain relatively constant over time, as would saving rates among working cohorts—that is, future 50-year-olds would save the same way that current ones do.

The study concluded that under a wide range of assumptions about policy, productivity growth, and rates of return, most baby-boom cohorts would enjoy considerably higher total consumption than their parents. However, an increasing share of that consumption would take the form of health care expenditures covered by government programs (such as Medicare and Medicaid), and the fiscal burden associated with those expenditures would gradually crowd out private investment and economic growth. Under the study's assumptions, younger boomers retiring in 25 to 30 years would have lower total consumption in retire-

24. Laurence Kotlikoff and Alan J. Auerbach, "U.S. Fiscal and Savings Crises and Their Impact for Baby Boomers," in Dallas L. Salisbury and Nora Super Jones, eds., *Retirement in the 21st Century: Ready or Not?* (Washington, D.C.: Employee Benefit Research Institute, 1994), pp. 85-126

ment than older boomers would—and lower non-medical consumption than current retirees have.[25]

Bernheim, in his series of analyses, also considered some possible policy changes to correct the funding problems facing Social Security and Medicare.[26] Under the assumption that future Social Security benefits will be cut by 35 percent (and under his standard assumptions, excluding housing equity and part of those savings not explicitly earmarked for retirement), he found that the average boomer household was saving only 18 percent to 22 percent of the amount required to meet the financial portion of its retirement needs.

Conclusions

The studies reviewed here generally suggest that, on average, baby boomers appear likely to accumulate more wealth—and thus be better off in retirement—than their predecessors. However, demographic trends make the boomers' experience different from that of their parents. Boomers can expect to live roughly two years longer than their parents, so if they intend to retire at roughly the same age that their parents did (as they indicate when polled), they will need more retirement wealth to provide the same standard of living over a longer period of time. Moreover, although they are having fewer children than previous generations did, boomers are often having children later in life and may therefore incur more child-raising expenses during their peak earning years, a time when households otherwise tend to save the most.

The retirement system, too, has changed for baby boomers. A greater proportion of the previous generation's workers were covered by defined-benefit pension plans (whose assets were not included in measurements of those workers' savings) than is likely to be the case for boomers in retirement. Because fewer boomers are covered by such plans, they may need to save more on their own initiative to match the pension benefits that their parents received (all else being equal). That concern is partly offset by the fact that boomers have access to—and many are making use of—tax-free savings plans that were not available to their parents.

Some observers argue that baby boomers are unlikely to experience the pleasant economic surprises that have benefited current retirees, such as the postwar economic boom, unexpectedly large Social Security and other government benefits, and a dramatic rise in housing prices. Those developments helped provide today's retirees with more-rapid wage growth and greater income in retirement than they had actually prepared or saved for. If boomers are imitating their parents' saving behavior, they may need similar unexpected returns to end up better off in retirement. However, it is not clear that boomers are undersaving if they are saving at the same rates that their parents did before government benefits and housing prices jumped, because the current generation of retirees reduced its saving rates when it encountered those unexpected boons.[27] If the basic issue is whether boomers are accumulating wealth at roughly the same pace as their predecessors, saving rates provide only part of the answer.

Future rates of return add another layer of uncertainty to the issue. Real long-term interest rates have declined in the past few years. If low returns continue, they will translate into lower wealth accumulation and income in retirement. Baby boomers are more likely than their parents to own stock and tend to be more exposed to stock market risk. Moreover, although boomers who own homes have benefited from rising

25. Assuming that the distribution of consumption within the age-65 cohort is the same as for current 65-year-olds, 40 percent of the oldest boomer cohort, 42 percent of the middle cohort, and 50 percent of the youngest cohort will not be able to consume as much at age 65 as the median 65-year-old did in 1992.

26. B. Douglas Bernheim, *The Merrill Lynch Baby Boom Retirement Index* (Princeton, N.J.: Merrill Lynch, July 1994); B. Douglas Bernheim, *The Merrill Lynch Baby Boom Retirement Index: Update '95* (Princeton, N.J.: Merrill Lynch, February 1995); B. Douglas Bernheim, *The Merrill Lynch Baby Boom Retirement Index: Update '96* (Princeton, N.J.: Merrill Lynch, April 1996).

27. See Sabelhaus and Manchester, "Baby Boomers and Their Parents," p. 803.

housing values, many have used the rise to take on home-equity-financed debt.

In sum, the typical baby boomer has more current income and wealth than his or her parents did at the same age, is accumulating wealth at roughly the same rate, and thus is likely to have more income in retirement. However, a number of uncertainties remain, which suggest that at least some boomers could end up worse off in retirement than their parents were.

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